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ON 10 August 47

ANNEX OBOE

TO

FOURTH MARINE DIVISION

OPERATIONS REPORT

IWO JIMA

10th AMPHIBIAN TRACTOR BATTALION REPORT

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30 Mar 45

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Copy No. 43

Hq, 10thAmphTracBn.
4thMarDiv (Reinf)
In The Field.
1 April, 1945.

From: The Commanding Officer.
To : The Commandant of the Marine Corps, Headquarters, Marine Corps.

Subject: Special Action Report, Iwo Jima Campaign.

Reference: (a) Pac Fleet Conf ltr 1CL-45, dated 1Jan45.
(b) FMF Gen Ord 66-44, dated 27Dec44.
(c) VAC Staff Memo No. 5-45, 10Mar45.
(d) 4thMarDiv SOP No. 1-45, dated 8Feb45.

Enclosure: (A) Report of Medical Officer.
(B) Report of Maintenance Officer.

1. It is the intention of this report to present in a narrative form the events involved in the Iwo Jima operation. For the sake of clarity and with the desire to eliminate excessive technical detail in the body of the report the Medical problems are discussed at length in Enclosure (A), and the Maintenance problems are presented in Enclosure (B).

SECTION I

Preparation and Planning

A. ARRIVAL OF LVTS:

1. Prior to the arrival of any new LVTs, this battalion had on hand 1 LVT(2) fitted out as a heavy duty retriever, and 1 LVT(4) fitted out as a machine shop, utilizing the fittings of the standard trailer, 5-ton, 4-wheel, machine shop. Both of these LVTs had been completely overhauled after the Saipan Operation and were in excellent operating condition. During October and November, 1944, 50 LVT(2)s cargo, 50 LVT(4)s cargo and 3 LVT(4)s maintenance, were received. The 3 LVT(4)s maintenance consisted of 1 machine shop, 1 hull repair shop and 1 spare parts shop. All cargo type LVTs arrived with the following armor:

(a) ½" armor over cab and bow.
(b) ½" armor "wings" port and starboard, welded to after part of cab for protection of machine gunners (on LVT(2)s only).

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(c) ¼" armor for engine and cargo compartment.
(d) 2 semicircular armor shields per LVT for the two forward machine guns (these shields had not been fitted on LVTs)

B. PREPARATION OF LVTS FOR COMBAT:

1. Preparation consisted of:

(a) The conversion of the original LVT(4) machine shop into a command LVT. This command LVT had 3 TCS radios installed, special additional batteries, a battery charger, a switchboard and other communication equipment so that it could be used as a message center and command post afloat or ashore.

(b) The conversion of 2 cargo LVT(4)s (one for each task company) into maintenance units. Each LVT was equipped with a folding boom and chain hoists, blocks and tackle, electric welding and oxy-acetylene cutting equipment.

(c) The modification of the transmission oil pressure valve, by cutting 3 turns of wire from the tension spring thus permitting freer movement of oil from the transmission to the oil coolers.

(d) The modification of the ramps of LVT(4)s, by cutting off approximately 4" of the reinforcing tubing along the top edge of the ramp. This reduced the chances of damage to the ramp and the possibilities of forcing the ramp open when coming alongside a ship.

(e) The cutting of vision slits for the driver in the cab. One slit was cut for forward vision and one was cut for side vision, each 5" wide by 1" high. This was necessitated by the fogging of periscope globes and periscopes due to the heat and steam from the transmission.

(f) Cutting ½" from the inside end of each grouser to reduce overhanging lips. This cut down on grouser wear by reducing "tearing" action in cases

of torn grousers the danger of ripping the hull was reduced.

(g) Cutting lubricating holes in the control channel housing to permit greasing of controls, connections, and guides without removal of the whole panel.

(h) Changing engine and transmission oil from mineral to detergent.

(i) Welding windows over vision slits cut (see (e) above).

(j) Removing periscopes and covers and welding plates over openings.

(k) Welding steps on the sides of LVT(4)s.

(l) Modifying and welding M48 Machine Gun Mounts to LVTs.

(m) Installing 1 rifle rack in each cab for an M1 rifle, to increase fire power of crew (armed with pistols) in event LVT had to be abandoned near enemy.

(n) Placing baffles on bow to reduce shipping of water into cargo compartment.

(o) Installing canvas curtains over rear cab entrance to reduce shipping of water into cab.

(p) Installing gas decontamination apparatus.

(q) Installing brackets, forward, on each LVT designed to secure 2 ladders, to be used by infantry in debarking from LVT on to a ledge if terrain required this procedure.

(r) Realigning 25 return idlers.

(s) Attaching towing shackles with hooks to expedite handling of tow cable connections.

(t) Extending the turning handle of the cuno filter through top of engine compartment so that the filter could be turned without danger of burns from exhaust pipes.

(u) Removing armor plate brackets which interferred with the adjustment of track tension and welding armor plate to hull.

(v) Installing machine gun shields.

(w) Camouflage painting all LVTs.

(x) Marking all LVTs according to 4thMarDiv directive.

(y) Running all LVTs 20 hours to permit proper mechanical adjustments and discovery and remedy of minor defects.

6. PLANNING:

1. About the same time that the last shipment of LVTs was received, i.e., November 12, 1944, verbal orders attaching this battalion to RCT 23, 4thMarDiv, wereissued. In conference with the regimental commander of RCT 23 it was decided that the landing would be made with two infantry battalions abreast and that each battalion would require 47 LVTs (23 LVT(2)s and 24 LVT(4)s in one case and 24 LVT(2)s and 23 LVT(4)s in the case of the other infantry battalion). In accordance with this tentative scheme of employment, two LVT task companies were organized and the work of preparation for combat was allocated.

2. It was considered desirable to have parallels of tactical unity between infantry and LVT units plus complete coverage of all control points. The means of achieving this are brought out in the following chart on the task organization.

The Task Organization consisted of a headquarters unit, 2 task companies composed of Companies "A" and "B", reinforced by units of Company "C", and liaison units as follows:

UNIT	OFF	ENL	COMPOSITION	INFANTRY UNIT LANDED
Div LVT Off (BnCO)	1	2	H&SCo Hq	- - - - - -
RCT LVT Off (BnExecO) (liaison)	1	3	H&SCo Hq	- - - - - -
Shore Party Liaison Off (1 officer for each beach)	2	0	H&SCo Hq	- - - - - -
BLT 1 Liaison Off (Task Company Commander)	1	2	Co."A" Hq	- - - - - -
BLT 2 Liaison Off (Task Company Commander)	1	2	Co."B" Hq	- - - - - -
Bn Headquarters (Bn-3 in charge)	7	43	H&SCo, Maint Sec H&SCo, Com Sec H&SCo, Hq Sec 4 LVT(4)s Maint 1 LVT(4) Command	- - - - -
Beach Evacuation Station (Attached to 4thMarDiv shore party)	2	9	Medical Section	- - - - -
Co."A" Hq	3	27	Co Maint Sec 1 LVT(4) Maint Co Hq Sec	
Co."A" 1st Plat	1	49	11 LVT(2)s 2 LVT(4)s	Co."B" BLT 1 RCT 23

UNIT	OFF	ENL	COMPOSITION	INFANTRY UNIT LANDED
Co."A" 2d Plat	1	46	11 LVT(2)s 2 LVT(4)s	Co."A" BLT 1 RCT 23
Co."A" 3d Plat	1	50	1 LVT(2) 11 LVT (4)s	Co."C" BLT 1 RCT 23 Adv SP CP BLT 1 RCT 23
Co."A" 4th Plat	1	34	1 LVT(2) 8 LVT(4)s	Bn Hq, BLT 1 RCT 23 37mm AT Platoon 81mm Mortar Platoon
Co."A" Det 4th Plat	0	3	1 LVT(4)	For Arty CO
Co."B" Hq	2	33	Co."B" Maint Sec 1 LVT(4) Maint Co."B" Hq Sec	
Co."B" 1stPlat	1	46	11 LVT(2)s 2 LVT(4)s	Co."F" BLT 2 RCT 23
Co."B" 2d Plat	1	46	11 LVT(2)s 2 LVT(4)s	Co."E" BLT 2 RCT 23
Co."B" 3d Plat	1	40	1 LVT(2) 11 LVT(4)	Co."G" BLT 2 RCT 23
Co."B" 4th Plat	1	34	2 LVT(2)s	Bn Hq, BLT 2 RCT 23 37mm AT Platoon 81mm Mortar Platoon
Co."B" Det 4th Plat	0	3	1 LVT(4)	For Arty CO
TOTALS	28	472	50 LVT(2)s 53 LVT(4)s	

NOTE: The 4th Marine Division assigned 2 LVT(4) to the 14th Marines as free LVTs to land command groups as required.

4. During this planning and preparation period, operation plans were being completed and shipping allocations worked out. RCT 23 prepared their landing diagrams and boat assignment tables and the LVTs were organized so that 1 LVT task company landed the assault elements of 1 infantry battalion; 1 LVT platoon landed 1 infantry company; each wave had an LVT officer present; and liaison officers were provided at key points for improved control. Such organization required a knowledge of:

(a) How the infantry planned to land.

(b) What ships, by type, were available for transporting both the LVTs and the infantry to be embarked in LVTs.

(c) Missions of LVTs after assault.

5. In addition to close cooperation between RCT 23 Hqs and the Hqs of this battalion it was also necessary that a mutual understanding between LVT officers and naval officers charged with control and wave guide duties be established. When plans had sufficiently crystallized to permit a clear picture of the desired scheme of landing, a conference was held at ADCOMPHIBSPAC, Pearl Harbor, in which the control of LVTs and communication requirements incident to such control were discussed with naval control officers.

6. The benefits derived from a common understanding of the problems and requirements between infantry, LVT personnel and naval control officers cannot be over emphasized. In addition it had been proven that the employment of LVT officers, at key control points assured the proper execution of any mission assigned.

D. TRAINING:

1. During the Preparation Period, formal training was interrupted by the day-by-day requirements. All crews were assigned to their LVTs, and, with the aid of the maintenance sections, each vehicle was readied for combat. All machine guns were checked and adjusted and firing at floating targets was conducted. Classes were conducted in signal communication and in the operating procedures to be employed in the forthcoming operation (as commensurate with security). To insure complete preparation of vehicles prior to [illegible]

the working day during November was extended to include an extra two hours from 1700 - 1900 daily. The physical fitness of personnel was maintained by 30 minutes of exercises each morning in battalion formation.

2. After rehearsals the errors observed were pointed out and, upon departure from the Hawaiian Area, final briefing was carried out. Aboard ship the LVTs were kept in peak condition by test running and constant checking.

E. EMBARKATION:

1. Upon receipt of final orders, briefing of all personnel was reviewed. Machine guns were mounted on LVTs; 1 .30 cal. and 1 .50 cal., were provided and 1500 rounds of belted .30 cal. ammo, and 750 rounds of linked .50 cal. ammo were loaded on each LVT. The battalion embarked aboard LSTs between 5 January and 10 Januray, 1945. LVTs were carried on tank deck, except the command LVT(4) loaded on the main deck to permit use of radios, and were loaded according to Transport Doctrine.

2. Embarkation was in accordance with the following table:

UNIT	OFF	ENL	LVTS
(a) APA #33 USS BAYFIELD Det Hqs 10thAmphTracBn (Div LVT Off)	1	2	0
(b) APA #196 USS LOGAN Det Hqs 10thAmphTracBn (RCT 23 LVT Off)	1	3	0
(c) APA #158 USS NEWBERRY Det Hqs Co."A"(BLT1 RCT23 LVT Off)	1	2	0
*Det Co. Hq, Co."B"	1	10	0
**Det H&SCo, 10thAmphTracBn	5	21	0
***Det Co. Hq, Co."A"	1	15	0

NOTE: * To report to LST #587 at target
** To report to LST #761 at target
*** To report to LST #716 at target

UNIT	OFF	ENL	LVTS
(d) APA #207 USS MIFFLIN			
Det Hq Co."B" (BLT 2 RCT 23 LVT Off)	1	2	0
(e) LST #723			
1st Plat Co."A"	1	49	11(2)s 2(4)s
Det 4th Plat Co."A"	0	6	2(4)s
	1	55	15
(f) LST #716			
3d Plat Co."A"	1	50	11(4)s 1(2)
Det 4th Plat Co."A"	0	10	1(2) 2(4)s
Co. Hq, Co."A" (less det)	2	12	1(4) (Co.Maint)
Det Co."C"	0	3	1(4) (Spare parts)
	3	75	17
(g) LST #642			
2d Plat Co."A"	1	46	11(2)s 2(4)s
4th Plat Co."A" (less det)	1	18	4(4)s
	2	64	17
(h) LST #812			
1st Plat Co."B"	1	46	11(2)s 2(4)s
4th Plat Co."B"(less det)	1	18	4(4)s
	2	64	17
(i) LST #761			
2d Plat Co."B"	1	46	11(2)s 2(4)s
Det 4th Plat Co."B"	0	6	1(4) 1(2)
*Det CoHq, Co."B"	0	8	0
Det H&SCo, 10thAmphTracBn	4	21	1(4)(Bn Command)/ 2(4)s(Bn Maint)
	5	81	18

NOTE: * To transfer to LST #587 at target
/ 1 LVT(4) Command stowed top side to permit use of radios during [illegible]

UNIT	OFF	ENL	LVTS
(j) LST #587			
3d Plat Co."B"	1	40	11(4)s
			1(2)
*Det H&SCo, 10thAmphTracBn	0	10	1(2)(Bn Retriever)
Det 4th Plat Co."B"	0	10	1(2)
			2(4)s
CoHq, Co."B"(less det)	2	15	1(4)(Co. Maint)
	3	75	17

NOTE: * Transfer to LST #761 with LVT at target.

(k) LST #764 (14th Marines)			
Det 4th Plat Co."A"	0	3	1(4)
Det 4th Plat Co."B"	0	3	1(4)
	0	6	2

F. REHEARSALS AND REHABILITATION:

1. In the period 12 - 17 January a rehearsal was held at Maalaea Bay, Maui. This rehearsal provided for four separate landings in simulation of the actual operation. In order to provide RCT 25 with some LVTs for the rehearsal, (their LVT battalion not being present in the area) the 10th AmphTracBn was ordered to man 49 additional LVTs. This required cutting down the crews on LVTs for RCT 23 but did not impair the efficiency of operation to any great extent. The rehearsal provided an excellent opportunity to iron out minor problems and gave the Navy wave guide officers much needed experience. Of the combat LVTs which landed RCT 23 none was permanently broken down, and, in all cases of mechanical failure, repairs were carried out rapidly with no detriment to training. Of the old training LVTs assigned to RCT 25, numerous total breakdowns occurred but, as these had been expected, no serious defects resulted; these old LVTs were returned to base camp at the end of the rehearsal.

2. On 18 January, 1945, all forces assembled at Pearl Harbor where LVTs were beached at West Loch and received their final check-up and servicing. During this period two conferences were held at ADCOMPHIBSPAC. These conferences cleared up any questions which arose during the rehearsals and permitted last minute adjustment of plans. Officers and men received final briefing and all personnel had at least one day of liberty. The LSTs left Pearl Harbor on 22 January, 1945, and arrived at Saipan on 10 February, 1945. The final rehearsal, to

include all units picked up in the forward area, was scheduled for 12 February, 1945, at Tinian. The rehearsal was hampered by bad weather and was of value only in that it permitted the LVT battalions that had recently joined us to have at least one chance to run through the landing and to correct minor defects. No LVTs of this unit were seriously damaged during this rehearsal and such damage as occurred was rapidly repaired. For this unit, the rehearsal at Tinian was of doubtful value.

3. On 15 February, 1945, all forces left Saipan for the target.

SECTION II

Landing Operation

A. GENERAL:

1. In general terms the orders received by this battalion provided for the landing of two assault infantry battalions of RCT 23 on beaches Yellow 1 and 2 on Iwo Jima beginning on D-day (19Feb) at H hour. Six LSTs were assigned to transport LVTs of this organization. Four of these LSTs had "hot cargo" loads and two carried special radar equipment. When assault troops had been landed the LVTs were to return to their parent LSTs, load to capacity with "hot cargo" and discharge this on the beach as requested. LVTs from the two radar LSTs were to report to LSTs carrying artillery and assist in unloading ammunition. It was presumed that upon the completion of this unloading no further use was to be made of LVTs.

B. CONTROL:

1. Naval control over the 4th Division area was centrally located in the Transron Control Vessel (PCS 1452). This vessel also had embarked the 4thMarDiv logistics control personnel. In addition, the senior LVT Bn Commander of the Division, in this case, the Commanding Officer of the 10thAmph TracBn, was embarked in this Control Vessel. His duties were to co-ordinate the operations of the two LVT battalions assigned to land the assault elements of the two infantry regiments; he was further responsible for keeping the 4thMarDiv representative informed of the distribution and missions of LVTs. In general he was the focal point of all incoming information on LVTs and acted as a distribution point for all outgoing orders from the Division to the LVT units. In actual practice, his activities included the constant supervision of [illegible]

from LSTs and further provided for the movement of LSTs in order to assist LVTs in their duties.

2. In the TransDivControl vessel was embarked the Naval officer responsible for control of traffic on the 2 beaches of one assault regiment. The executive officer of this LVT battalion was also embarked along with the tactical and logistical representatives of the RCT. The duties of the LVT officer were to advise the naval control officer on matters pertaining to LVTs and to co-ordinate the activities of LVTs for the RCT. He was also responsible for assigning missions for LVTs as required.

3. The individual beach control was exercised by a Naval officer assisted by the LVT company commander of the company landing on a particular beach, and the representatives of the infantry battalion involved. An LCF(L) was provided for this purpose.

4. Each LVT wave was guided into the beach by 2 LCVPs with navy guide officers aboard. These boats formed and guided the waves from the LSTs to the vicinity of the beach. Each wave had an LVT officer embarked in an LVT in the wave.

5. The shore party for each beach had an LVT liaison officer assigned to assist in controlling LVTs as they arrived with cargo.

6. In order to facilitate control of LVTs and to provide for a continual source of information as to the current distribution of LVTs, additional control stations were set up as follows:

(a) Bn Hqs LST #761 - Operated by Bn-3 - kept contact with all LVTs and using units.

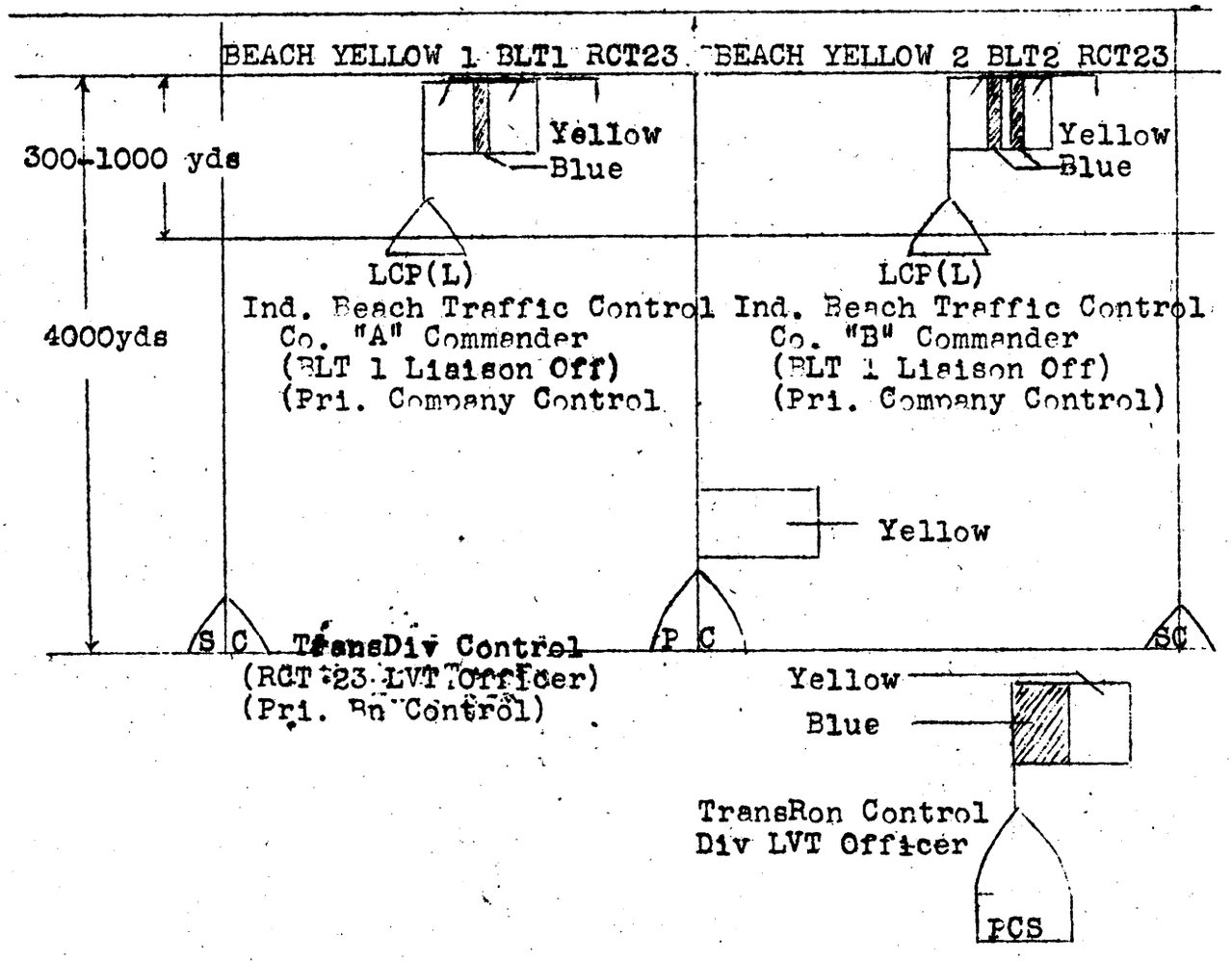
(b) Co."A" Hqs LST #716 - Operated by CoExecOff - kept contact with Co."A" LVTs and relayed information to Bn-3 as to disposition and damage of LVTs and the status of unloading of "hot cargo" on LSTs.

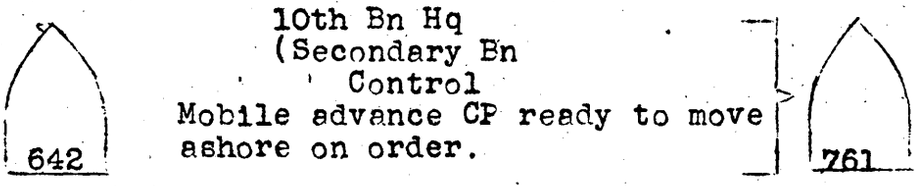
(c) Co."B" Hqs LST #587 - Same as (b) above.

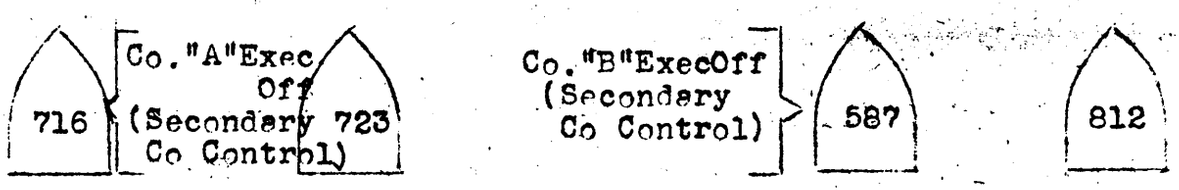
7. Yellow beach control plan and landing diagrams follow;

CONTROL PLAN

Navy and 10th AmphTracBn

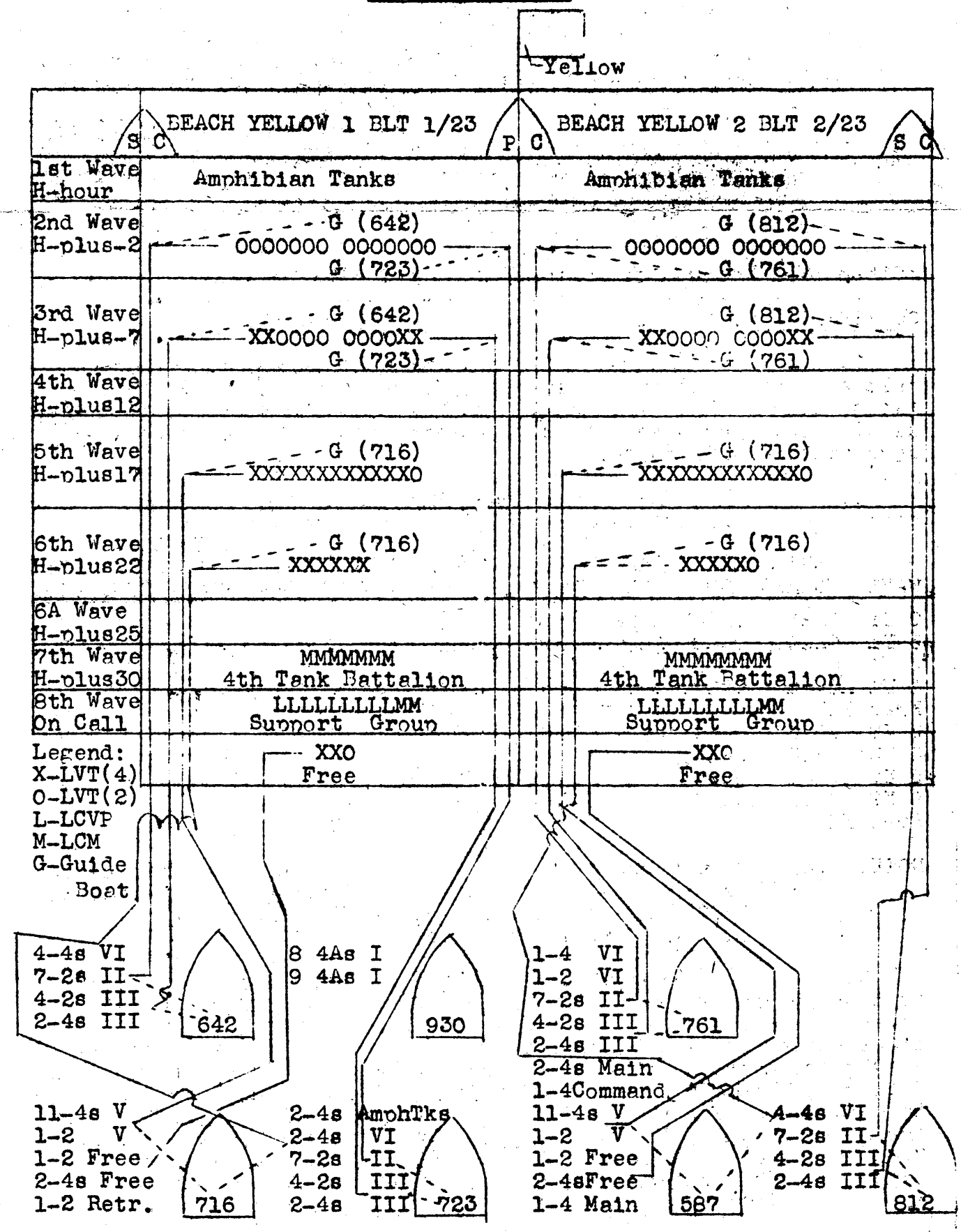






NOTE: (a) For communications between points see communications diagram under Section III.
(b) Each wave under command of LVT Platoon Leader who was in communication with each station listed above.
(c) Each wave was controlled by guide boat - see landing diagram.
(d) LCP(L) led first wave, composed of Amphibian Tanks, to 300 yards from the beach and then took station about 500 yards from the beach.
(e) All control craft had small boats (LCVPs or LCPs) available for messenger service.

LANDING DIAGRAM



NOTE: Wave Guide Boats assigned came from LSTs as indicated by the dotted lines
Minimum interval between LVTs - 20 yards.
Distance between waves 1 and 2 - 250 yards or 2 minutes
Distance between waves 2,3,4,5,6 - 650 yards or 5 minutes
Roman Numerals indicate waves.

day (19Feb) the weather was clear, sea calm and the tentative H hour of 0900 was confirmed. By 0735 two columns of LSTs arrived in the LST area and took positions as planned. Waves were formed and dispatched according to orders without difficulty.

8. The details and times of movement of the assault trip are outlined in the following table:

WAVE	WAVE FORMED	AT LD	LEFT LD	HIT BEACH	LEFT BEACH	LVTS MISSING FROM WAVES	LVTS DAMAGED WHEN RETRACTING	LVTS LOST
2 Y1	0826	0826	0832	0904	0905	0	0	0
3 Y1	0810	0840	0837	0906	0908	0	0	0
5 Y1	0745	0845	0847	0911	0914	0	0	0
6 Y1	0750	0854	0852	0920	0924	0	0	0
Free Y1						0	0	0
2 Y2	0745	0830	0832	0904	0910	0	0	0
3 Y2	0813	0840	0837	0907	0912	0	0	0
5 Y2	0805	0848	0847	0910	0922	0	1	0
6 Y2	0806	0853	0852	0920	0925	0	1	0
Free Y2						0	0	0

NOTE: (a) Wave 1 made up of LVT(A)s. No wave 4 on Yellow beaches.
(b) LVTs began debarking at 0740 and finished debarking at 0806. Individula LSTs required approximately 15 minutes each to unload.

9. Sporadic light automatic gun fire was received from the beach at about 0800 while LVT waves were forming. As the waves approached to within 600 yards from the beach ineffective light mortar and artillery fire was received. The 6th wave received the heaviest volume of fire. At about 50 yards from beach Yellow 2, LVTs of the second wave opened fire on a beached Jap lugger. Machine gun fire was being received from the vicinity of the lugger. Enemy fire ceased when LVTs hit beach. A total of 2400 rounds of .30 cal. and 1500 rounds of .50 cal. ammo were expended. The initial range to target was about 500 yards, closing to 50 yards. Fire silenced enemy machine guns.

10. Of the 94 LVTs assigned to the infantry, 6 were free. In the assault, LVT(2)s carried 18-20 troops, and

LVT(4)s carried 28-30 troops. All organic weapons of assault troops with an average of 1 unit of fire per weapon were carried. Included in this, were 10, ¼ton, 4x4 trucks, 6, ¼ton, trailers, equipment for 2 81mm mortar platoons and 2 37mm gun platoons. All troops and equipment were debarked without loss. Embarked troops manned LVT machine guns because the 3 man crew carried by the LVTs was not large enough to permit handling weapons.

11. The surf was moderate and the beach was steep. However it was unnecessary to use the scaling ladders provided. Extremely soft sand did not impede the movement of LVTs and, in the assault, the LVTs did not progress more than a few yards inland - to the first terrace - in order to furnish cover to the infantry in their debarkation.

12. All LVTs retracted under their own power, except two, which broke down after leaving and were towed out to a maintenance LST. The retraction was orderly and according to plan. The LVTs reported to assigned ships and took on loads of supplies. Those LVTs reporting to artillery LSTs had to stand off and wait until artillery was ordered ashore. By 1200 LVTs were all loaded with "hot cargo" and awaiting orders to land. However as fire increased on the beach the movement of troops and equipment was not as rapid as anticipated. It was not until 1600 that "hot cargo" from LST #812 and LST #587 was sent ashore upon request. LVTs were ordered to reembark by 1800. Ten LVTs were ordered to spend the night on yellow beaches to move supplies into front lines as required. However, these LVTs were not permitted to land. They remained in vicinity of beaches until dark and then returned to their LST. All LSTs except LST #761 sortied for the night at 1830. Shortly thereafter urgent requests for supplies, particularly ammunition, came from the beach. LST #761 was ordered to close the beach to about 1000 yards, and commenced unloading its cargo, By 0800, 20 February, the LVTs had completely unloaded LST #761 with the exception of 7 amphibian trailers and some pyrotechnics. By daybreak the other LSTs arrived and unloading of high priority cargo commenced. By dark on D/1 (20Feb) the following percentage of unloading had been completed:

(a) LST #761 - - - - - - - - - - - 98%

(b) LST #587 - - - - - - - - - - - 100%

(c) LST #812 - - - - - - - - - - - 100%

(d) LST #716 - - - - - - - - - - - 75%

13. The so-called "hot cargo" on each LST consisted of about 28 LVT loads; type and tonnage as follows:

(a) The following articles were stowed on LSTs #716, #761, #587 and #812 by the Navy or 4th Marine Division.

		CU.FT.	WT.
1.	Ammunition	7484	364100
2.	Emergency Rations	1060	33520
3.	Water	2880	176000
4.	Automatic Supplies	64	1600
5.	Wire (Barbed)	600	11000
6.	LVT Maintenance	16	400
7.	Petroleum		101088
8.	Smoke Ammo & Pyrotechnics	2072	61248
9.	"B" Rations 235 Pallets	19975	470000
10.	10-in-one Rations 255 Pallets	23205	579140
11.	"K" Rations	1200	4100
12.	"D" Rations	13	624
	TOTAL SUPPLIES LOADED ABOARD LSTS.	60101	1603020

14. This was unloaded under heavy fire which continued on all beaches through D/2 (21Feb).

15. All LSTs except 761 sortied for the night on D/1 (20Feb). Again 10 LVTs were assigned to work the beaches during the night, but only 4 were kept ashore; the others lay off the beach on call.

16. On D/2 (21Feb) the remaining cargo was landed from LSTs during the morning. As LVTs became available for other ships unloading, they were assigned to assist the 5thAmph TracBn in unloading the "hot cargo" from LSTs of RCT 25. During

this period a minimum of 10 LVTs also assisted in unloading artillery ammunition from LSTs transporting artillery units. On the beach, the LVTs were employed to move cargo to inland dumps, in some cases directly to front line dumps, and also to transfer cargo from LCVPs and LCMs lying off the beach, which could not come in because of bad surf conditions. The 3 retriever LVTs of the battalion were ordered ashore to assist in the work of clearing beaches of damaged LVTs, boats and other obstacles.

17. During the period D/1 (20Feb) to D/4 (23Feb), 41 LVTs were sunk, broached, rendered inoperative by mines, or were aboard LST #716 which had lost its ramp and could not debark. Sixty two LVTs were operative of which 5 were maintenance or command.

18. On D/3 (22Feb) and D/4 (23Feb), the work of cargo hauling from ship to shore and from shore inland continued. On D/4 (23Feb) it became increasingly difficult to move damaged LVTs to the repair ships and it was requested to establish heavy maintenance facilities ashore. The beaching of the maintenance LST for use as a repair base was recommended but because of congested conditions on the beaches this was not granted.

19. On D/5 (24Feb) the heavy maintenance units were ordered ashore and control of LVTs was shore-based. The bulk of the LVTs were now working ashore and only a few LVTs were required to unload ships.

20. From that day on to 15 March (the date reembarkation of LVT units commenced) the hauling of supplies from yellow beaches to inland dumps progressed on a 24 hour basis. On D/7 (26Feb), Co."A" was assigned to assist in the movement of 3dMarDiv supplies over Black Beach without detriment to the movement of supplies of the 4thMarDiv. Continual use of LVTs for evacuation of wounded to hospital LSTs during the first few days of the landing was made.

C. AMPHIBIAN TRAILERS:

1. Seven amphibian trailers with 4500 lbs each of ammo, rations and water were loaded on the weather deck of LST #761. On D/3 (22Feb) these were ordered ashore. The LVTs backed up to the weather deck and hooked on to the trailer. The LVTs towed the trailers down the ramp while a line from the winch of a TD18 tractor on the weather deck of the LST to the after part of the trailers acted as a brake.

2. On D/3 (22Feb) LVTs were ordered to the LSV-2 to unload more amphibian trailers. Because some of these trailers were loaded in such a manner (i.e., backwards) they were lowered into the water by a boom. It was impossible for the LVT to couple with a trailer afloat without endangering the life of a man who had to enter the water in order to couple it. In order to avoid this practice the trailers were towed by using a line from the after end of the LVT to the forward part of the trailer. Six trailers swamped and sank when being lowered into the water or during the coupling operation because of very rough seas. Work was suspended because of weather. The next day LVTs entered the LSV backwards and unloaded the remainder of the trailers in a manner similar to unloading from LSTs. In some cases 2 trailers were towed in tandem.

3. Because of heavy surf and beach conditions the following events occurred in beaching trailers:

(a) Trailers were difficult to manage in surf and caused LVTs to broach.

(b) Trailers pulled stern of LVTs down in surf causing LVT engine to flood.

(c) LVTs could barely move trailers in soft sand resulting in serious clutch wear and even damage.

(d) When trailers sank they could not be cast free readily and caused LVTs to sink with them.

D. REFUELING:

1. Refueling on D-day, D/1 and D/2 (19-20-21Feb) was accomplished from bowser boats, from LCVPs with drums and hand pumps and from parent LSTs when LVTs reembarked. On D/3 (22Feb) fuel barges were launched and refueling was accomplished from these barges. As fuel dumps were established ashore all refueling from D/5 (24Feb) to the last day of operation was shore based.

2. The following fuel and lubricants were consumed. (It must be remembered that by D/4 (23Feb) only 62% of the LVTs were operative.):

(a) 100 octane gasoline, 76,260 gallons.

(b) SAE 50 Detergent Oil, 2,000 gallons.

(c) #2 General Purpose Grease, 1,600 pounds.

3. LVTs were new when received and have had the following operating times:

(a) Prior to 1st rehearsal - 20 hours (test runs)

(b) First rehearsal (Maui Area) - 10 hours

(c) Second Rehearsal (Tinian) and running time aboard ship - 12 hours.

(d) During Operation (22 days) - 200 hours.

(e) Total running hours - 242 hours. (This average is exclusive of LVTs lost by other than mechanical failures).

E. MOTOR TRANSPORT

1. The following motor transport units were taken ashore:

(a) 1 Truck, 4x4, ¼ton.

(b) 1 Truck, 4x4, 1 ton, preloaded with supplies.

(c) 1 Truck, 6x6, 2½ ton, preloaded with spare parts.

2. This transport was adequate. In fact, because of the terrain, LVTs were continually employed rather than trucks for routine battalion hauling jobs. Only when roads were opened, were trucks of much use, and even then their value was limited. This is unusual because the employment of LVTs is generally confined to beaches as soon as possible during an operation to avoid tearing up roads and communication installations. If the use of LVTs had been thus restricted, the amount of motor transport taken along would have been the minimum required for duties such as hauling rations and water for the personnel of the battalion and for other routine functions.

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F. LOSSES:

1. Shown below is the final disposition of LVTs of this organization as of 5 April, 1945.

	2's	4's	TOTAL
(a) LVTs out by enemy shell fire	0	1	1
(b) LVTs out - hit mines	2	2	4
(c) LVTs sunk	4	12	16
(d) LVTs swamped	7	5	12
(e) LVTs left in custody of LVT Officer at Iwo. (All operative)	26	5	31
(f) LVTs sent to Saipan aboard LST #783 (2 inoperative and 7 required major overhaul)	6	3	9
(g) LVTs unloaded at Saipan from LST #716 (3 inoperative)	3	5	8
(h) LVTs unloaded at Maui from AK#43 and from LSD#2	0	14	14
(i) LVTs unloaded at Saipan from LST #812 (All inoperative)	2	2	4
(j) LVTs unloaded at Saipan from LST #761 (All inoperative)	0	4	4
TOTAL	50	53	103

NOTE: (a) (a) thru (d) completely disabled or irrepairable and left at Iwo Jima.

2. Personnel casualties:

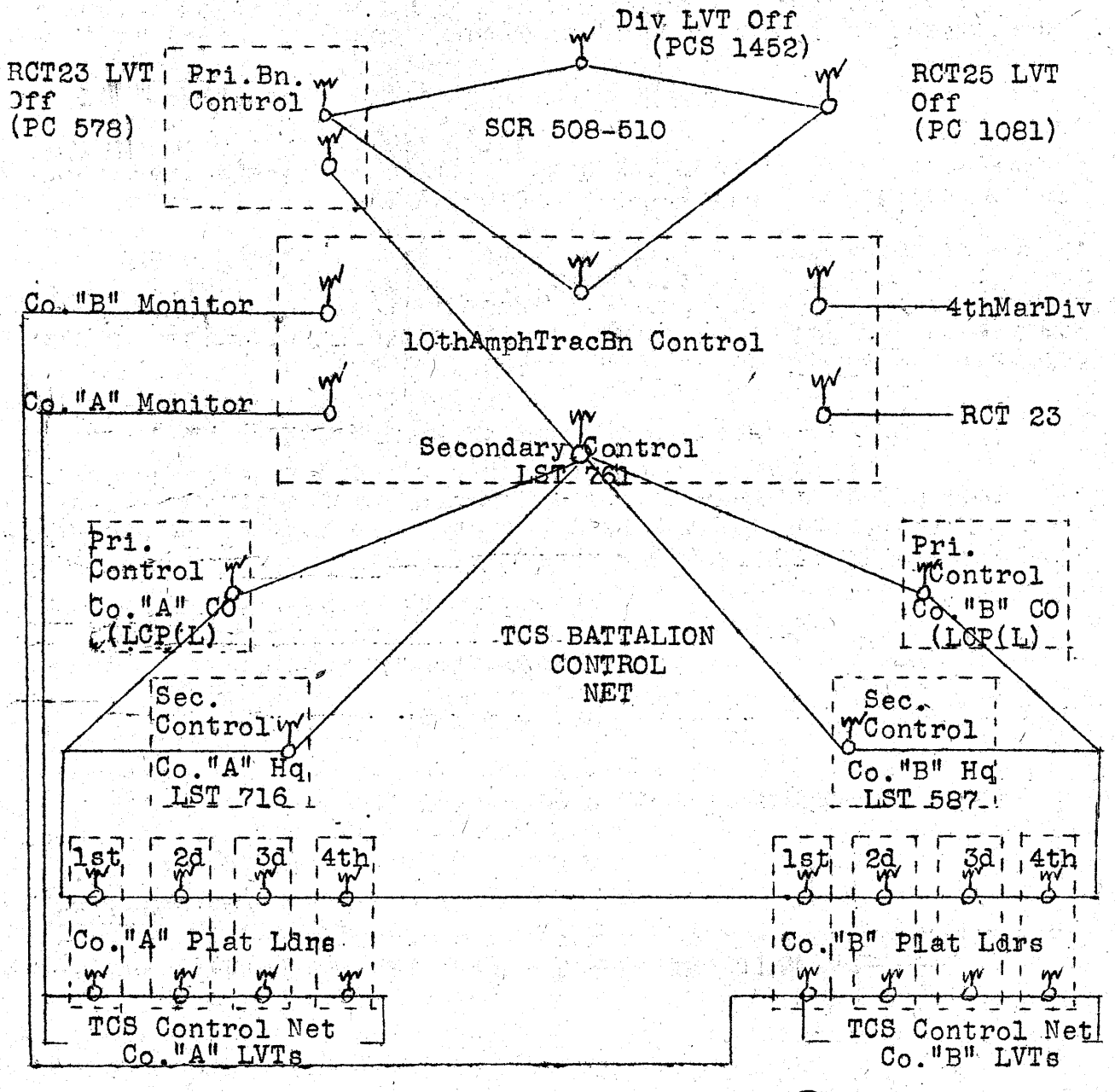
	ENL
(a) Killed in action	8
(b) WIA&Evac	17
(c) WIA&NotEvac	5
(d) Evac Sick	3
(e) Evac Sick and ret to d	2
(f) MIA	1
TOTAL	36 Enl., 0 Off.

SECTION III

Communications

A. COMMUNICATIONS NET

1. The Following net diagram indicates the plan employed:



B. EQUIPMENT:

1. All LVTs were equipped with TCS radios as follows:

(a) 85 single installations

(b) 16 dual installations

(c) 1 triple installation

2. Two MZs were used aboard ship as Company secondary control stations and 1 MZ with an additional TCS was used as an alternate Battalion control station aboard ship. One SCR-510 was used to net with the Div LVT Officer.

C. WATERPROOFING:

1. All single TCS sets in LVTs were waterproofed by installation in steel boxes. These boxes had a canvas flap in front to provide air circulation and facilitate operation while eliminating spray. Dual TCS installations in LVTs were wrapped in poncho material. All cable connections were securely taped.

2. Single sets were adequately waterproofed but dual sets should be provided with waterproof steel boxes, since poncho material was inadequate.

D. OPERATION:

1. Radio equipment operated well in most cases when operated by communications personnel. Individual TCS in LVTs which had to be operated by crew were not satisfactory because of:

(a) Technical difficulty of operating a TCS without complete knowledge of the set.

(b) Other duties required of crew which did not permit continual watch.

2. Common Radio trouble included:

(a) Failure of modulation relays

(b) Saltwater effect on microphones and earphones.

(c) Headphones do not shield engine and track noises.

(d) Relays in dynamotors became sluggish

(e) Waterproofing failed when LVT swamped.

3. Ashore, the use of radio was supplemented by wire and runners. A BD-72 switchboard was manned and six EE-8B telephones were installed.

E. FINAL DISPOSITION OF RADIO EQUIPMENT:

1. Disposition of 120 radios installed was as follows:

(a) 33 swamped or sank with LVTs

(b) 37 were operative in LVTs turned over to VAC LVT Officer.

(c) 28 left Iwo Area in unserviceable LVTs.

(d) 18 left Iwo in LVTs retained by the battalion.

NOTE: Of the radios in items (c) and (d), 16 were removed to permit repairs in transmissions and were turned in to 8th Field Depot Signal Section for salvage.

2. Of the 83 radios not sunk or swamped.

(a) 65 were operative

(b) 2 burned up by shorts

(c) 14 required minor repair

(d) 2 required major overhaul

SECTION IV

Comments and Recommendations

A. Reference: Section I Paragraph B (Preparation of LVTs for Combat)

1. A period of 30 days is the minimum time necessary to prepare 100 new LVTs for combat. This time requirement is based upon having on hand, all needed materials for combat preparation.

B. Reference: Section I Paragraph C (Planning)

1. The infantry plan of landing should be announced early enough to permit an LVT task organization to be set up as required.

2. The distribution and duties of liaison officers should be thoroughly understood by all using units concerned.

3. Conferences on Control Practices between infantry and LVT units and between naval control officers and LVT officers should be held as early and as frequently as necessary to assure mutual understanding of all phases of the operation involved.

C. Reference: Section I Paragraph E (Embarkation)

1. Assignment of shipping space is usually contemplated upon the basis of LVTs and crews only. It is essential that provisions be made for maintenance personnel on each ship carrying LVTs and that consideration be given to unit headquarters to allow embarkation with their LVTs.

D. Reference: Section I Paragraph F (Rehearsals and Rehabilitation)

1. The use of LVTs in rehearsals should be kept to a minimum consistent with adequate training for the following reasons:

(a) Desire to have LVTs reach the target in best mechanical condition.

(b) Relatively short operational life of LVTs and great susceptibility to damage.

(c) Difficulty of repairs once base camp is broken up.

(d) Limited spare parts available aboard ship.

(e) Difficulty of welding (one of the most frequent types of repairs needed) on ships which are loaded with explosives and fuel.

2. A period of rehabilitation is essential after a rehearsal to permit servicing and repairs not feasible during rehearsal. Supplies for rehabilitation should be available at the rehabilitation area to avoid using supplies intended for combat.

3. A rehabilitation area should provide adequate space and facilities to permit beaching and working upon all LVTs.

E. Reference: Section II Paragraph B (Control)

1. After landing assault elements of RCTs, LVTs should revert from RCT to Division Control but continue to support the RCT to which originally assigned. The reasons for this measure are as follows:

(a) LVTs would be available to the division for use in emergencies without delay of reference to RCTs.

(b) The efficient landing of RCT supplies would not be impaired because the LVTs would continue to operate across beaches upon which they landed initially and the LVT liaison officers with the RCT shore party continue to function and serve the RCTs.

(c) Duplication and contradiction of orders would be eliminated.

(d) A more complete and comprehensive use of LVTs could be made over all beaches as the situation required.

2. Each beach should initially have an LVT liaison officer with the BLT shore party commander to assist in the control of LVTs on a given beach. Upon landing of the RCT shore party commander these 2 LVT liaison officers should report to him and assist him in the control and distribution of LVTs over the RCT beaches.

3. All using agencies should request only those LVTs they require. Too often more LVTs are asked for than are necessary, causing a decrease in the number of LVTs available for other missions. For example; BLT shore party commanders should tell RCT shore party commanders what their needs are and the LVT liaison officer with the RCT SP CO should assign the proper number of LVTs for the job. The size of the working party is an important factor in determining the number of LVTs necessary for a given job.

4. The use of a Division LVT Officer is desirable. Such an officer can facilitate operation and control of LVTs as required by the division logistics officer. He may also recommend movement and disposition of certain shipping to the best interests of LVTs; this usually provides for faster unloading and fewer losses.

5. The control set up for this operation was all that could be desired except that the use of LCCs as beach traffic control boats rather than LCPLs is strongly recommended. The LVT officer on the LCC should have a tender at his disposal to permit personal supervision and control of LVTs as the situation demands.

F. Reference: Section II Paragraph D (Amphibian Trailers)

1. The use of amphibian trailers is not recommended for the following reasons:

(a) In considering shipping space, it is apparent that the trailer occupies well over twice the volume of the supplies it carries.

(b) Because of difficulty of handling in heavy seas and surf, good weather conditions are necessary for unloading.

(c) LVTs had to be empty in order to tow trailers ashore, thus a vehicle (LVT) capable of carrying up to 9000 pounds had to be empty in order to tow a trailer carrying only 4500 pounds.

(d) Present towing device of trailers has to be modified and strengthened before it can be used. Trailers cannot be coupled to LVTs when afloat except by having a man enter the water.

(e) It takes as long and in most cases longer, for an LVT to come to an LST or LSV, couple on to a trailer and tow it ashore, than it takes for an LVT to pick up twice the trailer capacity in loose cargo and deliver it to the same dump.

G. Reference: Section II Paragraph E (Refueling)

1. The launching of barges at earliest possible time is urgently recommended. This is the best system yet devised for refueling LVTs at sea.

H. Reference: Section II Paragraph G (Losses)

1. The provisions outlined in the Transport Doctrine regarding the recovery of LVTs and crews must be enforced. LSTs have continually contributed to LVT losses by not keeping proper station, by suddenly getting under way during recovery of LVTs and by launching LVTs too far from beach in heavy seas. LST personnel must be made aware of the many limitations of LVTs and must render all possible assistance as required. In crowded waters and in heavy weather, LSTs have difficulty in maintaining station; however, whenever LSTs have to move for any reason, the ship's officers must be certain that there are no LVTs being recovered. In several cases LVTs about to enter the ship were sunk when the LST suddenly got under way.

I. Reference: Section III (Communications)

1. In the diagrams that follow, the recommended nets are shown in three separate diagrams and the fourth diagram combines all nets into their proper interrelated positions.

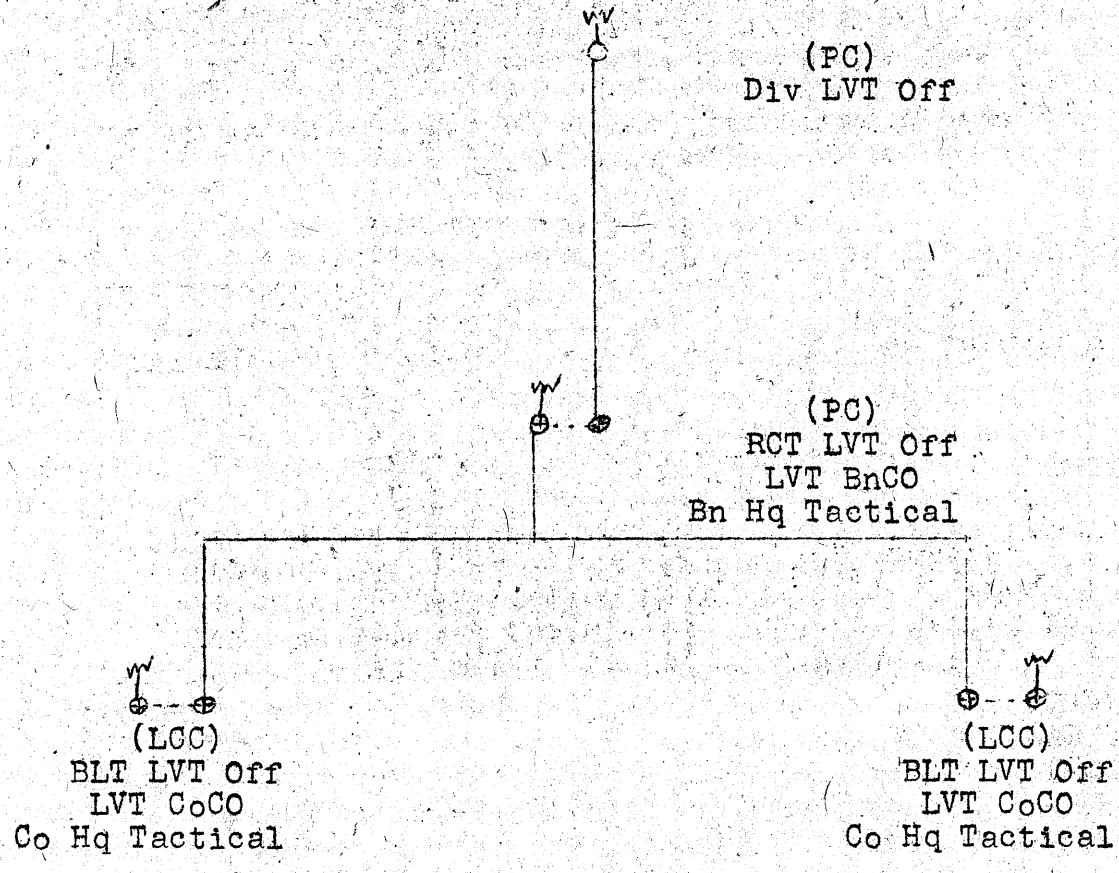
(a) The Primary LVT Control Net is installed by the Navy in such control vessels as are assigned. This net is used for tactical control afloat by the LVT unit commanders. At Iwo Jima this net was operated and proved an extremely valuable aid. LCP(E)s were used in place of LCCs but these latter craft are much more desirable. In view of the restricted space on control craft only one officer and one or two radio operators usually can be embarked. Thus, the keeping of complete records on disposition of LVTs, breakdowns, status of unloading and other data necessary to efficient functioning is virtually impossible on the control vessels.

(b) The Secondary LVT Control net is set up with equipment organic within an LVT Battalion. This equipment is carried because it is required ashore when control is established on the beach. While afloat this net is established on the LSTs carrying the LVT unit headquarters. At these stations the unit executive officers can keep the administrative records mentioned in paragraph (a) above. Furthermore the LST carrying the LVT Bn Hqs personnel can communicate with other units involved in the use of LVTs. This net was established during the Iwo Jima Operation and proved very valuable. When control is established ashore, this becomes the only control net available, and, as the unit commanders rejoin their headquarters this net becomes both tactical and administrative.

2. If the value of "hot cargo" is to be fully exploited it must be readily accessible. Accessibility in this case depends largely on proper communication. The LVT liaison officer with the RCT shore party commander must be in direct contact with the LSTs carrying the "hot cargo". In this manner he can direct LVTs to specific LSTs; he can keep himself continually informed as to the load remaining on any LST and can thus control the movement of supplies accurately and rapidly. For this purpose the Logistics Net, as outlined [illegible] recently recommended.

PRIMARY LVT CONTROL

NAVAL INSTALLED IN CONTROL VESSELS



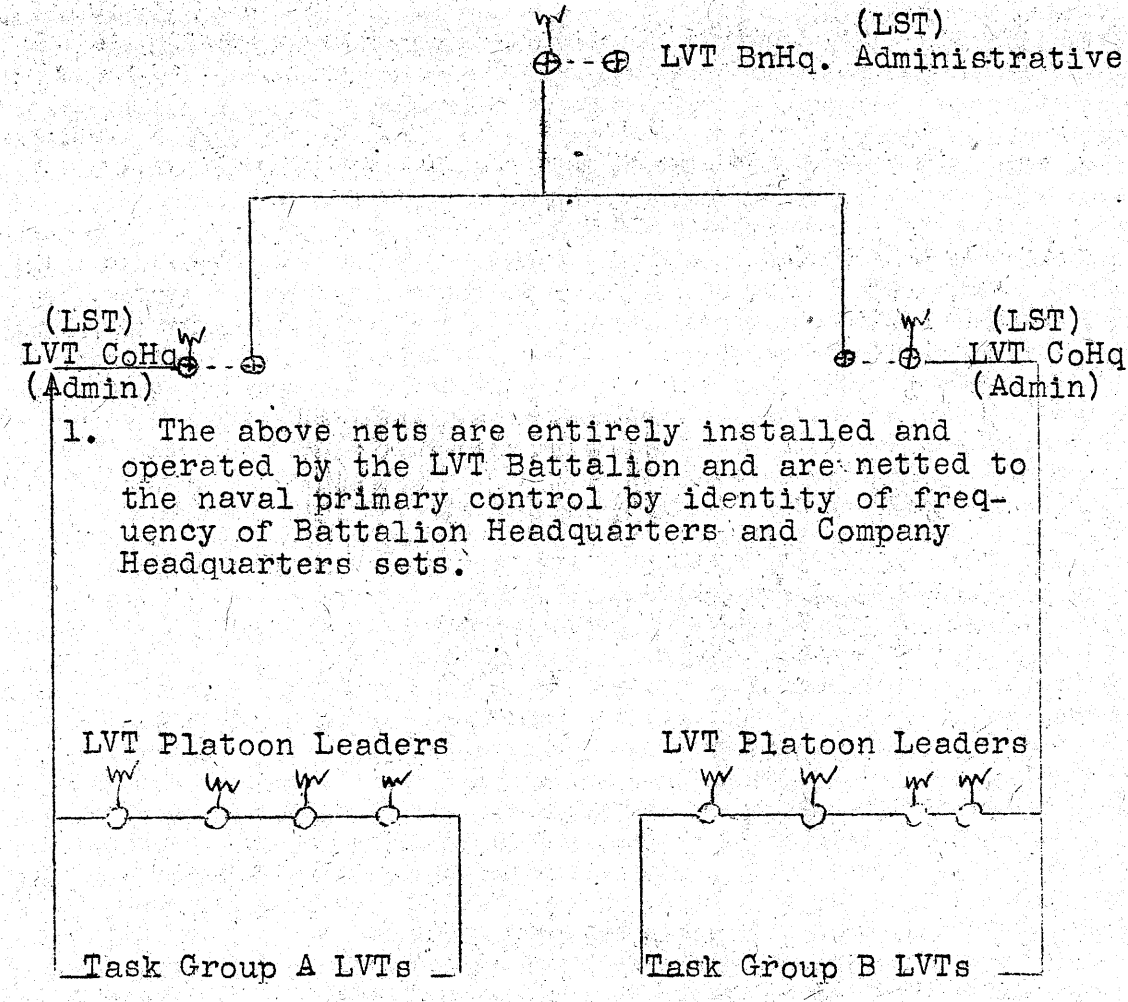
1. The above diagramed net is entirely navy installed and is operated by LVT Battalion for primary control.

2. Division LVT Officer is netted with Battalion Commander. Battalion Commander is netted with Company Commanders on a different frequency.

3. This net ties in to the Secondary Control Net through the Bn Hqtrs Tactical.

SCR 528
SCR 508

LVT SECONDARY CONTROL



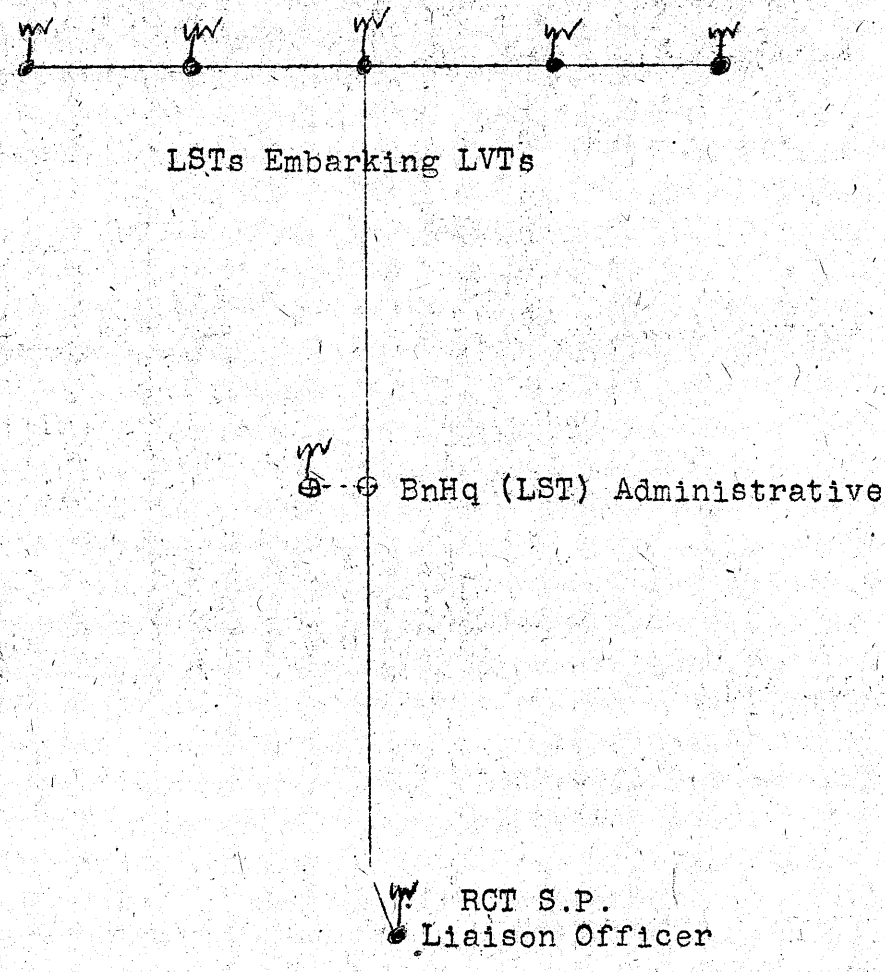
1. The above nets are entirely installed and operated by the LVT Battalion and are netted to the naval primary control by identity of frequency of Battalion Headquarters and Company Headquarters sets.

2. These nets are entirely mobile and act as secondary control (Administrative) afloat and primary control, both tactical and Administrative ashore.

SCR 528

SCR 508

LVT LOGISTIC NET



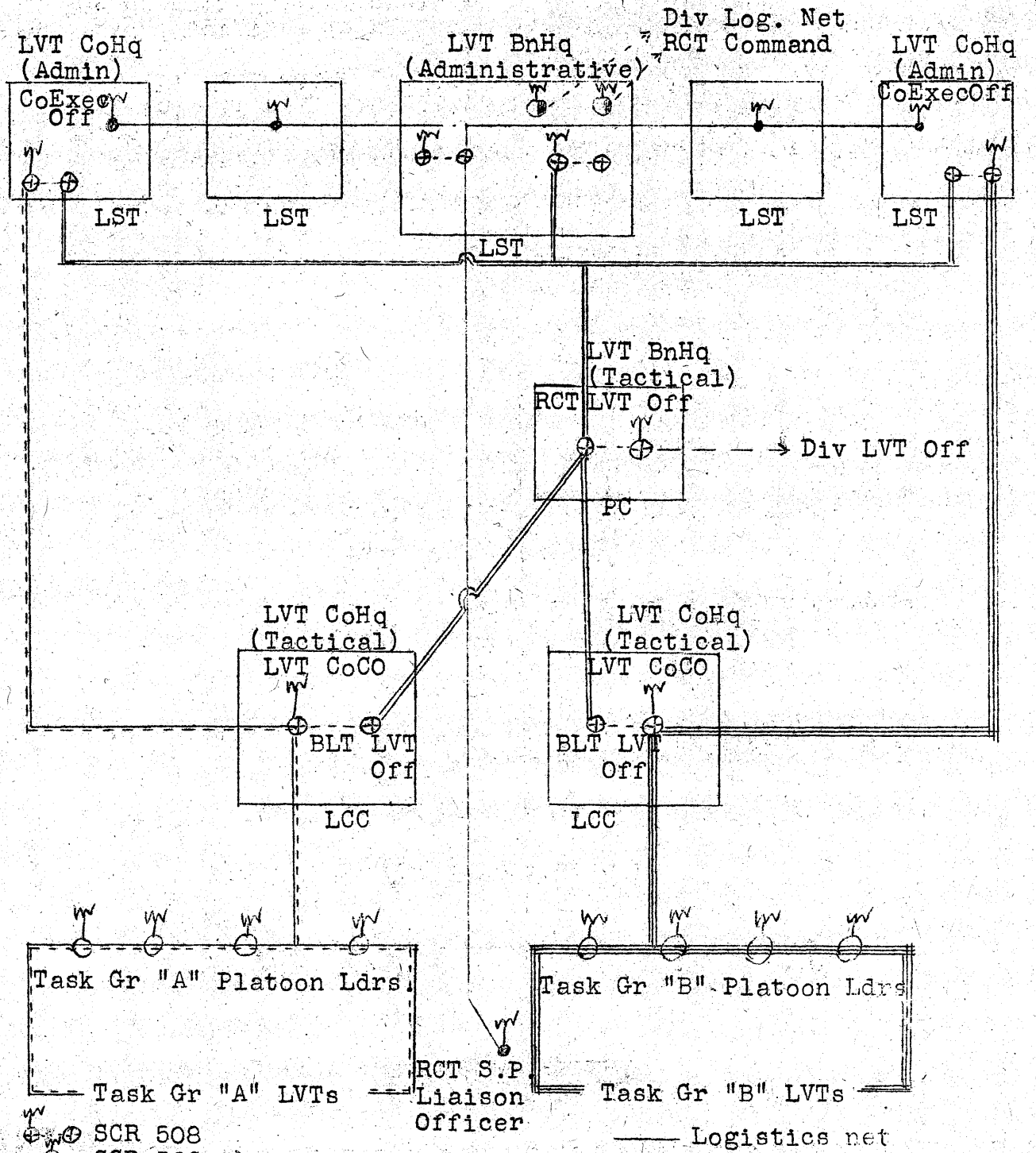
1. The above net is logistic in nature.

2. This addition is recommended as an addition to LVT Communication doctrine.
   (a) It will facilitate the control of LVTs from the beach.
   (b) Unloading of LSTs of "hot cargo" will be expedited.

3. This net ties in with the Secondary LVT Control Net through the Bn Hqtrs Administrative.

.SCR 508
.SCR 510

RECOMMENDED COMMUNICATIONS NET - ASSAULT PHASE



3. The recommended communication's plan requires the following numbers and types of sets:

(a) SCR 508 - - - - 6

(b) SCR 528 - - - -103

(c) SCR 510 - - - - 6

(d) TCS - - - - - - 2

NOTE: These are exclusive of Navy installed radios.

4. The above recommended changes are an increase of 1 SCR 510 and 1 SCR 508 over the current T.O. allowance.

V. J. Croizat

V. J. CROIZAT

DISTRIBUTION:

CinC Pac & POA	(3)	Naval War College	(1)
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CG, 2dMarDiv	(1)		
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CG, TC, FMF, Camp Lejeune	(1)	2dAmphTracBn	(1)
CG, TC, FMF, Camp Pendleton	(1)	3dAmphTracBn	(1)
CG, Troop Trng Unit Pacific	(1)	4thAmphTracBn	(1)
ANSCOL	(1)	5thAmphTracBn	(1)
		8thAmphTracBn	(1)
		9thAmphTracBn	(1)
		11thAmphTracBn	(1)
			(10)

Office of the Battalion Surgeon
10thAmphTracBn.
4thMarDiv. (Reinf)
In The Field
1 April, 1945

ENCLOSURE (A)

From: The Battalion Surgeon.
To : The Commanding Officer, 10th Amphibian Tractor Battalion.

Subject: Report of the Medical Section - IWO JIMA Campaign.

SECTION I

Preparation and Planning

A. ORGANIZATION:

1. On reaching the Battalion Rehabilitation Base on 2 September, 1944, following the Saipan Operation, this medical section was composed of nine, (9) hospital corpsmen and one (1) medical officer all of whom were attached to Battalion Headquarters. During the training period, one (1) PhM3c was attached to each of the three (3) tractor companies to act as company corpsmen and they participated with the companies in all basic training exercises. They were charged, in addition, with the responsibility of making daily sanitary inspections of the company areas. The remainder of the medical section operated and maintained the Battalion Sick Bay. On 11 September, 1944, a Dental Officer was assigned to the section and one PhM3c assisted him thereafter. One additional corpsman was added to the complement the latter part of November.

B. PLANNING:

1. During the planning for the Iwo Jima operation, the Battalion Medical Officer, with the full approval of the Battalion Commander, approached the Division Surgeon, 4th Marine Division, with the proposal that this medical section be given a definite assignment to work with a beach evacuation station or on a hospital LST for that operation. Consequently a conference composed of, the Division Surgeon, the Commanding and Medical Officers of this battalion, and the Battalion Medical Officer of the 4th Pioneer Battalion was called. It was decided that this medical section should operate with the medical section of the Fourth Pioneer Battalion as a part of the shore party medical section for the purpose of casualty evacuation, and that the details should be worked out by the battalion surgeons and approved by the Division Surgeon and the Commanding [illegible]

ENCLOSURE (A)

2. The plan which evolved was as follows:

(a) This medical section initially embarked upon APA #158 (USS NEWBERRY), should transfer to LST #761 on D-day (19Feb45) and stand by awaiting a call from the Battalion Surgeon, 4th Pioneer Battalion to land.

(b) This section was to operate on beach Yellow 1 (RCT 23 zone of action) in conjunction with a portion of the medical section of the 4th Pioneer Battalion.

(c) The Dental Officer of this section was assigned the specific function of expediting the flow of casualties through the evacuation station by arranging for transportation.

(d) While enroute to target, it was further decided that the above mentioned call to land would probably be made prior to 1400, D-day (19Feb), and that in the absence of a call at that time, this section should make inquiry regarding the advisability of going ashore.

(e) Detailed plans regarding supplies and equipment were made by this section in conjunction with the Battalion Surgeon, 4th Pioneer Battalion.

(f) The Surgeon, FMF Pacific was informed of these plans and he requested a complete report of the operation with recommendations.

C. TRAINING:

1. During the training at Maui and rehabilitation period at Pearl Harbor the personnel of this medical section participated in the routine battalion training and were given the prescribed instructions in the duties of a hospital corpsman. (See Battalion Report)

D. REHEARSAL:

UNCLASSIFIED

1. The medical section remained aboard ship during the rehearsal.

SECTION II

Movement to Objective

A. REHABILITATION:

1. The activities of this section during the rehabilitation period were coordinated with those of the Battalion. These activities are covered in Section I of this report and Section I and II of the battalion report.

B. SHIPBOARD TRAINING:

1. On 31 December, 1944, the Medical Officer, Dental Officer, and eight Pharmacists Mates embarked aboard APA #158 (USS NEWBERRY). One corpsman remained with the battalion rear echelon, and one corpsman embarked aboard LST #761 on 10 January, 1945 with the medical section equipment and supplies. The major portion of battalion headquarters was also embarked on this LST. In addition to holding sick call for troops aboard the APA #158, daily instruction of medical personnel in their general duties and, specifically in their duties in the evacuation station was carried out throughout the voyage to the objective.

C. FORWARD AREA REHEARSAL:

1. The section remained aboard ship during this rehearsal.

SECTION III

Ship to Shore Movement

1. At 0700, D-day (19Feb) the personnel were transferred (by LCM) from APA #158 to LST #761, reaching the latter ship at 0800. The Battalion Commander was notified of this transfer and preparations were made for immediate departure for beach Yellow 1 upon receipt of orders to [illegible] had been

UNCLASSIFIED

received by 1400 but, the following information indicated that it was advisable for this section to go ashore:

(a) Direct communications between the shore and ships was very difficult and devious, and a message may not have been relayed through.

(b) Resistance to the assault was increasing and considerable mortar and artillery fire was falling on the beaches.

(c) Tractor drivers returning to the ship stated that there were many casualties on the beaches.

2. As a consequence of this information, the section was embarked from the LST into an LVT with the necessary supplies and equipment. One Pharmacists Mate was left aboard the LST with the remainder of the property. After reporting to the TransDivControl Boat for Yellow beaches and receiving the permission of the Battalion Executive Officer to land, the beach was approached at a point on the boundary between beaches Yellow 1 and 2, which had been previously selected. When approximately 200 yards off the beach (at 1500) an intense mortar barrage covered the section of beach selected and it was necessary for the tractor to pull back out to the traffic control boat for beach Yellow 1. When the barrage subsided the tractor proceeded ashore landing at the previously decided point at 1540.

SECTION IV

Narrative of Operation

1. Immediately upon landing, preparations were made for joining the evacuation station which was to have been set up on Yellow beach 1 by a portion of the medical section, Fourth Pioneer Battalion. It was learned however that this station had been put out of action by enemy fire and the personnel were all casualties.

2. During the period of organizing on the beach, word of the arrival of this medical section had spread along the beach and a large number of serious[illegible] were brought

in. These men were treated and evacuated as expeditiously as possible in the presence of rather intense mortar, artillery and sporadic machine gun fire. It was reported that some of these men had lain on the beach untreated for several hours. At 1630, the runner who had been sent along the beach to establish contact with other evacuation stations, reported that he had found only the remnants of stations with no medical officers on Yellow beaches 1 and 2.

3. Throughout the period from the time of landing at 1540 until 1730, this medical section was set up on a section of beach between Yellow beaches 1 and 2 in a poorly protected spot. Continuous enemy mortar and machine gun fire was steadily causing casualties in the vicinity and all hands were engaged in transportation and treatment of these casualties, therefore it was impossible to move to a more satisfactory site, at that time.

4. During a lull at about 1730, it became possible to move all personnel and gear about 30 yards inland from the high water line to a well protected site in a large bomb crater beneath the first high terrace. It was in this site that the evacuation station was set up and operated thereafter. Because of the reported localities of the front lines, the contour of the terrain, the semblance of protection afforded litter bearers by the projecting apron of air field No. 1 and the reported absence of other evacuation stations it was felt that this site was preferable to any other in the vicinity.

5. At about 1830, a battalion (2dBn, 14thReg) of artillery began landing and was set up between the evacuation station and the water. Although the personnel of this battalion afforded local security for the evacuation station, the firing of their guns interfered somewhat with the flow of casualties through this station.

6. The senior Medical Officer, 4th Pioneer Battalion visited this station for the first time at 1000, D/1 (20Feb) and thereafter daily. Daily reports of evacuation were submitted through him to the Division Surgeon, 4thMarDiv. During the afternoon of D/1 (20Feb) a Medical Officer and one corpsman from the LST (Hospital) #930 assisted in this station for a few hours and then returned to their ship. At 1800 on this same day, the remaining corpsman from LS[illegible] and the remainder of the medical supplies.

7. Sporadic, intense mortar and artillery barrages fell on this section of the beach, (19-20 and 21Feb). Thereafter only occasional scattered artillery fire occurred.

8. Outgoing transportation for casualties was arranged by the battalion Dental Officer. Amphibian tractors and amphibian trucks were used almost exclusively for this purpose although minor casualties were occasionally evacuated by LSM at night. The Dental Officer arranged for and supervised the clearing of a road along the beach, thus facilitating transportation. Except when it was necessary to retain a casualty for treatment, no casualties after D-day (19Feb) were kept in the station longer than 30 minutes. Amphibian trucks were found to be the most satisfactory vehicles for evacuation.

9. On the morning of D/5 (24Feb) this medical section reverted to parent control and acted thereafter as the battalion sick bay. At this time, a large portion of the equipment and supplies, including those brought in at the time of landing and those salvaged along the beach after landing was turned over to another evacuation station.

10. The following tables and figures summarized the activities of the section during the five day period, D-day to D/5 (19-24Feb). It should be noted, however, that the majority of the casualties treated and evacuated on D-day (19Feb) and the morning of D/1 (20Feb) were not properly logged due to intense fire and continual aid work required of all personnel. Therefore these figures are not entirely correct.

(a) CASUALTIES (Treated by this Medical Section)

(1) Returned to duty	11
(2) Evacuated	225
(3) Died	4
TOTAL	240

(b) CASUALTIES EVACUATED (Transportation)

(1) Walking Wounded - - - - - - - - 148

(2) Stretcher Cases - - - - - - - - 77

TOTAL 225

NOTE: Sixty nine (69) of the total were from the 21st Regiment, 3dMarDiv. The remainder were from 4thMarDiv and attached units.

(c) CASUALTIES EVACUATED (Types)

(1) Shrapnel Wounds: Serious - - - 20
Minor - - - - 74
TOTAL 94

(2) Gunshot Wounds: Serious - - - 3
Minor - - - 12
TOTAL 15

(3) Blast Concussion 12

(4) Combat Fatigue
(Includes all psychoneuroses) 68

(5) Miscellaneous Conditions 32

(6) Burns 4

GRAND TOTAL 225

NOTE: Classified under serious are those whose general condition was poor and those who were threatened with loss of extremities or eyes.

(d) PENETRATING ABDOMINAL AND CHEST WOUNDS

(1) Abdominal - - - - - - - - - - - - - 3

(2) Chest - - - - - - - - - - - - - - - 6

(e) CASUALTIES DIED IN STATION: (Types)

(1) Penetrating Head Wounds - - - - 3

(2) Chest - - - - - - - - - - - - - - 1

TOTAL 4

NOTE: All of these were moribund on admission.

11. Nothing unusual with regard to treatment of casualties was observed but, as in previous operations, blood plasma and molded, ply-wood leg splints were of great value. Medical and Quartermaster supplies and equipment were entirely adequate throughout the operation. Since a great quantity of medical gear was salvaged on the beach, no resupply was necessary.

12. There were no casualties among the personnel of this section.

13. Field sanitation for the 10thAmphTracBn, was in general, more satisfactory than on previous operations. By D/2 (21Feb) all units ashore were using latrines made of oil drums sunk in the ground and covered with fly-proof seats. These were sprayed with oil and DDT powder daily. All water was obtained in clean drums from ships and distillation units. No food other than the usual packaged rations were eaten and galleys were not set up. There were no epidemics of unusual diseases. The dead were rapidly disposed of by burial details from the 4thMarDiv.

14. In addition to other duties mentioned above, the Dental Officer performed six dental extractions during the operation.

15. On the morning of 14 March, 1945, this section reembarked aboard APA #178 (USS LANDER) for the return to base.

SECTION V

Recommendations and Comments

A. INTRODUCTORY NOTE:

1. This medical section functioned effectively as a replacement evacuation station during the Iwo Jima Operation. However, if the other medical units originally scheduled to operate as evacuation stations had not been lost to enemy fire early on D-day (19Feb), the employment of this section in addition to those units would have been an unnecessary waste of medical personnel.

2. It is impossible for medical sections of Amphibian Tractor Battalions to initially support the battalion in the sense that infantry, artillery, etc., battalions are supported by their medical sections; because amphibian tractor battalions operate over a large area of beach and sea and are embarked upon many ships until control is established ashore. This control ashore does not occur until massing of LVTs ashore can be carried out without drawing heavy fire. For this reason, amphibian tractor medical sections should be given a definite assignment in support of the RCT's until such time as they can serve their parent battalions more effectively. The following standard operating procedure is, therefore, proposed.

B. PROPOSED SOP FOR AMPHIBIAN TRACTOR MEDICAL SECTIONS:

1. ASSIGNMENT

(a) Medical sections of amphibian tractor battalions shall be assigned by the Division Surgeon to the hospital LST which receives casualties from the section of beach upon which the battalion is operating. Their functions shall be to assist the personnel of that ship in the treatment and further evacuation of casualties.

(b) Upon order of the division or regimental surgeon, the medical section shall be detached from that ship, if conditions so require, and assigned as a replacement or auxiliary for beach or shore party evacuation stations in the area supported by the battalion. The division surgeon and the commanding officer of the AmphTrac battalion shall immediately be notified of the position ashore. Except in emergency as determined by [illegible] surgeon, the

section shall not be assigned to medical organizations other than the evacuation stations named above.

(c) When the tactical situation permits the various units of the AmphTrac battalion to reassemble under battalion control the medical section shall be ordered by the commanding officer of the AmphTrac battalion to rejoin the battalion headquarters and assume the functions of battalion aid station. The Division Surgeon shall be notified of this order so that replacement may be made if necessary.

2. PERSONNEL

(a) Unless other provisions for the care of the battalion rear echelon can be made, one pharmacists mate shall remain with the rear echelon.

(b) The assignment of the Dental Officer shall be made by the commanding officer on recommendation of the Medical Officer.

(c) When companies of the battalion are bivouaced separately after reversion to battalion control, two corpsmen shall be attached to each company for the purpose of first aid, sick call, and sanitation. Other corpsmen shall remain in battalion headquarters.

(d) During the assault phase of the operation and before reversion to battalion control, the personnel of this section shall not be assigned to tractor companies or platoons as aid men but shall remain together as a unit.

3. EQUIPMENT AND SUPPLIES:

(a) These shall be assembled and loaded in accordance with the division and battalion plans.

(b) Supplies and equipment shall not be used aboard the LST (Hospital) except in emergency but shall be put aside for use ashore when [illegible] necessary.

(c) Resupply shall be made in accordance with the di - vision plan.

4. FIELD SANITATION:

(a) Items in this category will be covered in division medical plans.

C. MISCELLANEOUS

1. PERSONNEL

(a) Although the battalion Dental Officer did excellent work, during this operation it is felt that his safety was unnecessarily imperiled and that he should be left in the rear echelon or aboard ship with battalion headquarters during subsequent operations.

(b) In order for the proposed SOP (see Paragraph B-2-(a) above) to function most effectively, one hospital corpsman of any rate should be added to the table of organization for these sections.

2. EVACUATION STATIONS

(a) A plan should be made whereby the duties of beach party and shore party medical sections are co-ordinated so that they may work together as evacuation stations. It is felt that such a plan would eliminate much of the existing confusion caused, among other things, by medical personnel wandering into and out of established stations apparently at will.

(b) Because of their greater carrying capacity smoother riding and other obvious advantages, amphibious trucks should be used for the evacuation of casualties from the beach to ships in preference ot amphibian tractors, LCVPs, and [illegible] craft.

Specific vehicles should be assigned to this function and marked accordingly.

Perry R. Ayres
PERRY R. AYRES

UNCLASSIFIED

ENCLOSURE (B)

H&SCo, 10thAmphTracBn.
4thMarDiv. (Reinf)
In The Field
1 April, 1945

From: The Battalion Maintenance Officer.
To : The Commanding Officer, 10th Amphibian Tractor Battalion.

Subject: Report of the Maintenance officer - IWO JIMA Campaign.

SECTION I

Planning and Preparation

A. PLANNING

1. When this battalion was re-organized, after the Saipan - Tinian operation, a new table of Organization was used. This allowed an increase of one officer and seven enlisted men in each company maintenance section, giving each company a maintenance officer and fifteen enlisted men. The battalion maintenance section was increased from two officers and nineteen enlisted to two officers and twenty-seven enlisted and the designation was changed from battalion maintenance section to battalion maintenance platoon.

2. A maintenance policy was established, in that, company maintenance sections would do minor repairs and unit replacements while the battalion maintenance platoon would do major repairs and would rebuild units. The spare parts policy was established at the same time. It was decided to give the company maintenance sections all of the fast moving parts such as starters, generators, magnetos, spark plugs, return idlers and track parts while the battalion maintenance platoon kept the necessary spare parts to rebuild transmissions, differentials, final drives, engines and electrical equipment. The equipment and spare parts carried are listed below:

EQUIPMENT CARRIED

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ENCLOSURE (B)

	H&SCO	CO."A"	CO."B"	TOTAL
LVT(2) Retriever, W/Booms, power winch	1			1
LVT(4) Co.Maintenance Vehicle W/Booms, hand winch		1	1	2
LVT(4) Machine Shop	1			1
LVT(4) Hull Repair Shop	1			1
LVT(4) Spare Parts	1			1
Tractor, 1Hc-TD-18 W/Dozer	1			1
Trailer, Spare Parts, 2 wheel, 1 ton	1			1
Trailer, Electric Arc Welding	1	1	1	3
Trailer, convoy Lubrication	1			1
Generator, 2½ K.W., gasoline engine driven	1			1
Oxygen - Acetylene, welding & cutting equipment, sets	3	1	1	5
Blacksmith equipment, set	1			1
Charger, Battery, 6 volt	2	1	1	4
Electric welding Supplies, expendable, sets	3	1	1	5
Acetylene welding supplies, expendable sets	3	1	1	5
Acetylene, cylinders	6	3	3	12
Oxygen, cylinders	18	9	9	36

SPARE PARTS CARRIED

TYPE	AMOUNT
Combat Spares LVT(2)	¼ set
Combat Spares LVT(4)	¼ set
The sets above were supplemented as listed below:	
Engines, Complete	5
Starter, assy.	4
Magneto, assy.	6
Generator, assy.	6
Solenoid, Starter	5
Solenoid, battery	5
Voltage and Current regulator assy.	4
Transmission and controlled differential	2
Controlled differenctial assy.	6
Herringbone gears, large	6

TYPE	AMOUNT
Herringbone gears, small	6
Grousers,	100
Cross plates, track	50
Bolts 1 ¼x½x20NF	600
Link Nuts, long	200
Link Nuts, short	100

B. TRAINING:

1. A training schedule consisting of lectures, training films and film strips on basic electricity, fuels, carburation, track, suspension and field expedients was followed until the arrival of the New LVT's. The schedule was discontinued at this time, so that the maintenance personnel could ready the vehicles for combat.

C. REHEARSAL:

1. During the rehearsal at Maui, very little trouble was encountered. All of the repairs were accomplished by the company maintenance sections with the exception of one final drive that the battalion maintenance platoon rebuilt for Company "B".

2. While in Pearl Harbor all the LVT's were put ashore near West Loch. At this time all engine and tramsmission oil was changed.

3. The vehicles were lubricated and given a final check prior to reembarkation for Saipan. In the Tinian rehearsal the battalion maintenance platoon timed one engine and replaced another while the company maintenance sections quickly dispatched all minor difficulties as they occurred.

SECTION II

Assault

A. MAINTENANCE WHILE EMBARKED:

1. The battalion maintenance platoon was embarked on the LST #761. This ship was [illegible] Navy

as an LVT maintenance ship. The company maintenance sections were embarked with their company headquarters on LSTs #716 and #587. These two LSTs were designated "Company Maintenance" ships by this battalion.

2. During the initial assault all maintenance work was done aboard the maintenance LSTs. On D/2 the battalion retriever and company maintenance vehicles were ordered ashore. They assisted in clearing the beach and preformed such light maintenance and salvage as they could. Maintenance continued aboard ship until D/5 (24Feb).

SECTION III

General Unloading

A. MAINTENANCE ASHORE

1. On D/5 (24Feb) all maintenance moved ashore. Emplacements, well dispersed, for the various vehicles and shops were dug with a bull dozer. The failures encountered and spare parts used are listed below:

LVT MECHANICAL FAILURES BY GROUP

Engine Group

ITEM	AMOUNT
Broken articulated rod, engine ruined	1
Oil system failure, engine burned up	3
Excessive Loss of Power - Worn rings, bad valves, etc.	2
Clutch assembly (replaced)	4
Clutch hub, splined	1
Spark Plugs (140 of these were reclaimed)	310
Magneto assy.	6
Magneto breaker point assy.	12
Magneto ground cable	2
Fuel Pump	3
Peirce Governor Assy.	1
Carburetor	2
Exhaust Tubes, flexible	200

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Electrical Group

ITEM	AMOUNT
Generator Assy.	4
Solenoid, battery	7
Voltage and Current regulator assy.	5
Battery	12
Blowers, Engine room and Cab ventilating	3

Bilge Pump Group

Couplings, Thermoid	4
Drive shaft, bilge pump	2

Power Train

Gear, reverse idler (Trans)	1
Interior final drive (Herringbone gears)	18
Exterior final drive, all studs sheared	7
Exterior final drive, 3 or more studs sheared	9
Propellor shaft (LVT(4))	1

Ramp Group

Winch worm key	6
Cable, ramp lifting	5
Hinge, ramp (Old non-torsional)	12

LVT SPARE PARTS USED BY GROUP

Engine Group

ITEM	AMOUNT
Engine Complete	5
Spark Plugs	310
Clutch Hub, splined	1
Magnetos	2
Tubes, exhaust, flexible	140
Clamps, 3", Tubing	100
Governor, Pierce, assy.	1
Studs, generator mounting	7
Fuel pump	2
Cable, Magneto, ground	2
Clutch, assy.	4
Radiator, oil cooling	2

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Electric Group

ITEM	AMOUNT
Generator assy	4
Brush, generator, sets	5
Solenoid, battery	7
Solenoid, starter	3
Battery	12
Fuse, 15 amp	9

Bilge Pump Group

Bilge pump assy.	1
Bilge pump drive shaft	1
Key, bilge pump drive shaft	8
Coupling,, Thermoid	6
Shaft, bilge pump	1

Track and Suspension Group

Grousers	250
Cross plates	150
Link inside	96
Link outside	150
Link nuts, long	500
Bolts $1\frac{1}{4}$" x$\frac{1}{2}$" x20 NF	1000
Bogie wheel	5
Sprocket, drive	5
Sprocket, idler w/shaft	8
Idler, return assy	12
Bolts, sprocket ring to hub	54
Track Assy, complete	2

Power Train

Gear, herringbone, large	15
Gear, herringbone, small	15
Bearings, internal final drive, sets	3
Stud, external final drive to drive sprocket	43
Shaft, external finaldrive w/studs assy.	5
Lever, gear shift	2
Gasket, internal final drive	8

ITEM	AMOUNT
Gasket differential cover plate	7
Propeller shaft (LVT(4))	2

Ramp Group

Lifting, cable	3
Toggle latch	6
Bearing, worm-gear shaft	4
Key, worm gear	6
Seal, rubber	2

SECTION IV

Recommendations

A. EQUIPMENT:

1. Maintenance facilities and personnel were adequate for this operation. The present organization greatly relieves the burden that the battalion maintenance platoon carried on previous operations. It is recommended that in future operations the company maintenance sections and the battalion maintenance platoon retain the same organization. Below are listed the spare parts and equipment considered necessary for prolonged operations ashore:

2. Equipment considered necessary:

TYPE	H&S Co.	EACH Co(3)	TOTAL Bn.
LVT(2) Retriever w/booms, power winch	1		1
LVT(4) Maintenance w/booms, hand winch		1	3
LVT(4) Machine Shop	1		1
LVT(4) Hull repair	1		1
LVT(4) Spare parts	1		1
Tractor, 1 AC TD-18 w/dozer	1		1
Tractor, 1 AC TD-18 (ART.Y) w/front winch	1		1
Tractor, 1 HC TD-9		1	3
Trailer, Spare parts, 4 wheel, 2 ton	1		1

TYPE	H&S Co.	EACH Co.(3)	TOTAL Bn
Trailer, Spare parts, 4 wheel, 1 ton	1	1	4
Trailer, convoy lubrication	1	1	4
Trailer, steam cleaner	1	1	4
Trailer, electric Arc welder	1	1	4
Truck, 2½ ton, 6x6, cargo	1		1
Truck, 2½ ton, 6x6, wrecker	1		1
Truck, 1 ton, 4x4, cargo	1	1	4
Truck, ¼ ton 4x4, cargo	2	1	5
Generator, 2½ KW, gasoline engine driven	1		1
Oxygen - Acetylene, cutting and welding equipment, sets	3	1	6
Charger Battery, 6 volt	2	1	5
Blacksmith, equipment sets	1		1

3. Spare parts considered necessary (Based on 50 LVT(2)s and 50 LVT(4)s).

Combat spares, LVT(2)s, sets	1
Combat spares, LVT(4)s, sets	1

4. The above listed sets to be supplemented as follows:

ITEM	AMOUNT
Engines, complete	5
Controlled differential assy	2
Generator	6
Starter	6
Magneto	6
Herringbone gears, large	6
Herringbone gears, small	6
Solenoid, starter	4
Solenoid, battery	4
Voltage and Current regulator, assy	6
Grousers	500
Cross plates, track	250
Track bolts	2500
Link nuts, long	1000
Link nuts, short	5000

B. CONTROLLED DIFFERENTIAL:

1. An interesting fact to note is the complete lack of controlled differential trouble on this operation. In nineteen days operation on Saipan, this battalion encountered eight controlled differertial failures. Undoubtedly, the force - feed lubrication system, as installed by the factory, was the biggest factor in eliminating this trouble. Cutting three turns from the transmission oil pressure control valve spring helped in combination with the fact that this was by far the coolest weather encountered during an operation.

C. FINAL DRIVES:

1. The extremely high number (fifteen) of interior final drive failures during this operation, can be contributed to two things; structural weakness and overloading. The final drives were designed for use in the M-3 tank and are not heavy enough for the LVT. Twelve of the fifteen failures occurred in LVT(4)s which were in great demand all during the operation. These vehicles were utilized in carrying the heaviest and bulkiest loads because they are easier to load and unload than the LVT(2).

D. RAMP BUMPER:

1. The removal of four and one half inches from each end of the ramp bumper bar on the LVT(4)s served its purpose very well but as the sponsons were not reinforced or modified, they suffered considerable damage in loading and unloading from LSTs during rough weather.

E. AMPHIBIAN TRAILERS:

1. This battalion unloaded forty-seven amphibian tailers at the target area. These trailers weigh 4400 lbs emty and approximately 8800 lbs loaded. The axle is located two thirds of the way back on the chassis of the trailer thereby putting all the weight on the draw bar. It is impossible to get enough men around one to the trailers to raise the draw bar high enough so that it can be coupled to an LVT. The trailers

on the main deck of the LST #761 were moved by placing a five ton floor jack under the draw bar and then pulling them with a winch cable and appropriatly placed snatch blocks.

2. It is extremely dangerous for a loaded LVT to tow a loaded amphibian trailer down the deck ramp of an LST, therefore empty LVTs were used. Each LVT that towed an amphibian trailer could have carried the load of two or more trailers. In view of the facts above it is recommended that the further use of amphibian trailers be discontinued.

F. MAINTENANCE LST

1. The LST #761, in addition to being a battalion maintenance ship, carried a platoon of LVTs and a load of ammunition, water and rations. This arrangement is entirely unsatisfactory as the unloading of the preload interfered with the maintenance work and vice versa. Since the preloads also contained explosives, welding was prohibited until all of the preload was moved ashore. This further hampered necessary LVT repairs. The preloads, being placed on the side of the LST tank deck, necessitate the LVTs be parked so close together that it is impossible for the LVT crews to lubricate any of the important outside fittings, or tighten any loose track or sprocket bolts, hence the large number of sheared final drive studs encountered D-day (19Feb). It is a difficult task to snake a damaged LVT aboard an LST. Once the tank deck is full of damaged tractors it is impossible to unload any until those that are taken in last are repaired. Since an LSD is equipped with two powerful cranes and a stern ramp it is recommended that in future operations an LSD be furnished as an LVT maintenance ship.

2. In the event that an LSD cannot be furnished it is recommended that an LST be furnished as an LVT maintenance ship. This LST should not have a preload. A Platoon of LVTs could be carried to the target area, on this ship, but should not return aboard after once debarking. This LST would then be left entirely clear for LVT maintenance. It should be stationed as close to the beach as possible, during the initial assault, so as to reduce the number of LVTs that sink while under tow to the LVT maintenance ship. This ship could be beached early in

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[illegible] and used as an LVT maintenance shop until time and space permitted the heavy maintenance unit to move ashore.

3. The Captains of various LST's often lose sight of their primary purpose, which is to act as a mother ship for a platoon of Amphibian Tractors. This battalion lost four cargo LVTs and one LVT retriever unit as a direct result of LSTs refusing to stop and pick them up. LST Captains should be reminded of their responsibility to the LVTs based aboard their ship.

W. E. Lunn
W. E. LUNN
